RFID at Maintenance Facilities

June 2, 2005

The RFID Vision

Implement knowledge-enabled logistics through fully automated visibility and management of assets in support of the warfighter

RFID - an Enabler to the Integrated DoD Supply Chain

Cases/Pallets are labeled with passive RFID tags. Cases are associated to pallet

Cases/Pallets are read as they are received and **new shipments are labeled**. Orders are verified for

Cases/Pallets are associated with **Active RFID** to provide TAV.

Data is timely and accurate via network of linked readers allowing asset visibility along the entire supply chain

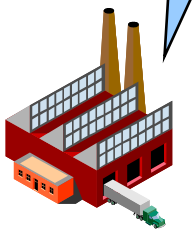
Manufacturers/ Suppliers

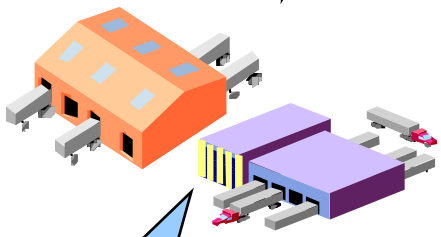
Distribution Centers/Depots/TDCs

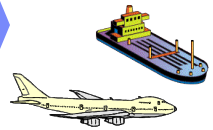
Commercial/Military Carriers

TMO/Supply/ Theater Depots

Customer







Timely and Accurate Data

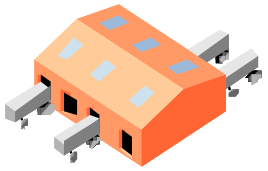
When shipments are reconfigured a new RFID Tag is created for the pallet and associated with cases on that pallet

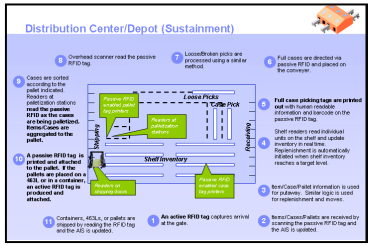
The **cases/pallets are automatically received** with few disputes and info is shared with the AISs. Reconfigured shipments receive a new RFID Tag.

Customers have visibility of requisitions and **are confident** in the status provided by the system

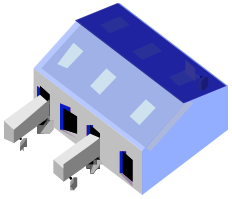
DoD RFID Implementation

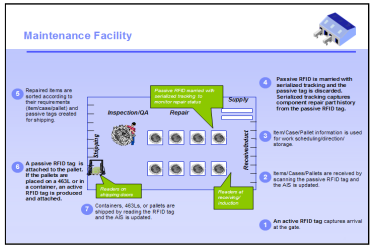
Distribution Centers/Depots



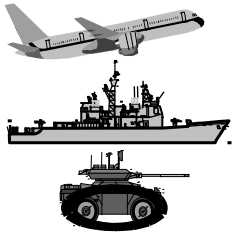


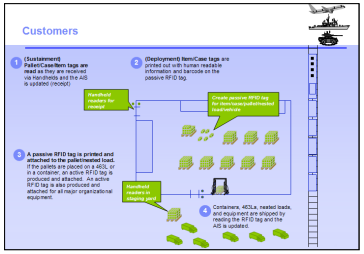
Maintenance Facilities





Customers





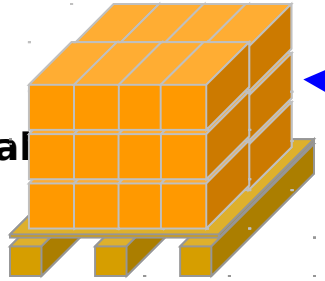
- **Initial focus…shipping/receiving/transportation**
  - **Ultimately…enable business processes within the logist**

RFID tags are nested, providing improved “inside the box/pallet” visibility.

Advanced Shipment Notice 856S transaction captures associations

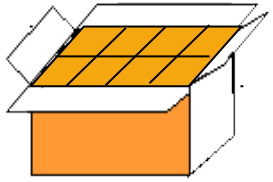
Passive RFID Tag on Pal

associated to a…

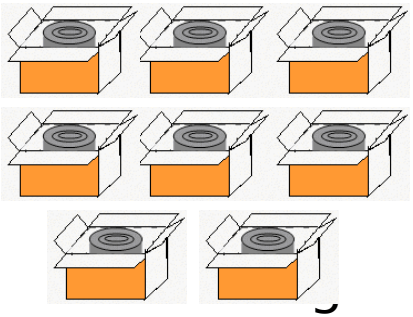


Passive RFID Tag on Carton

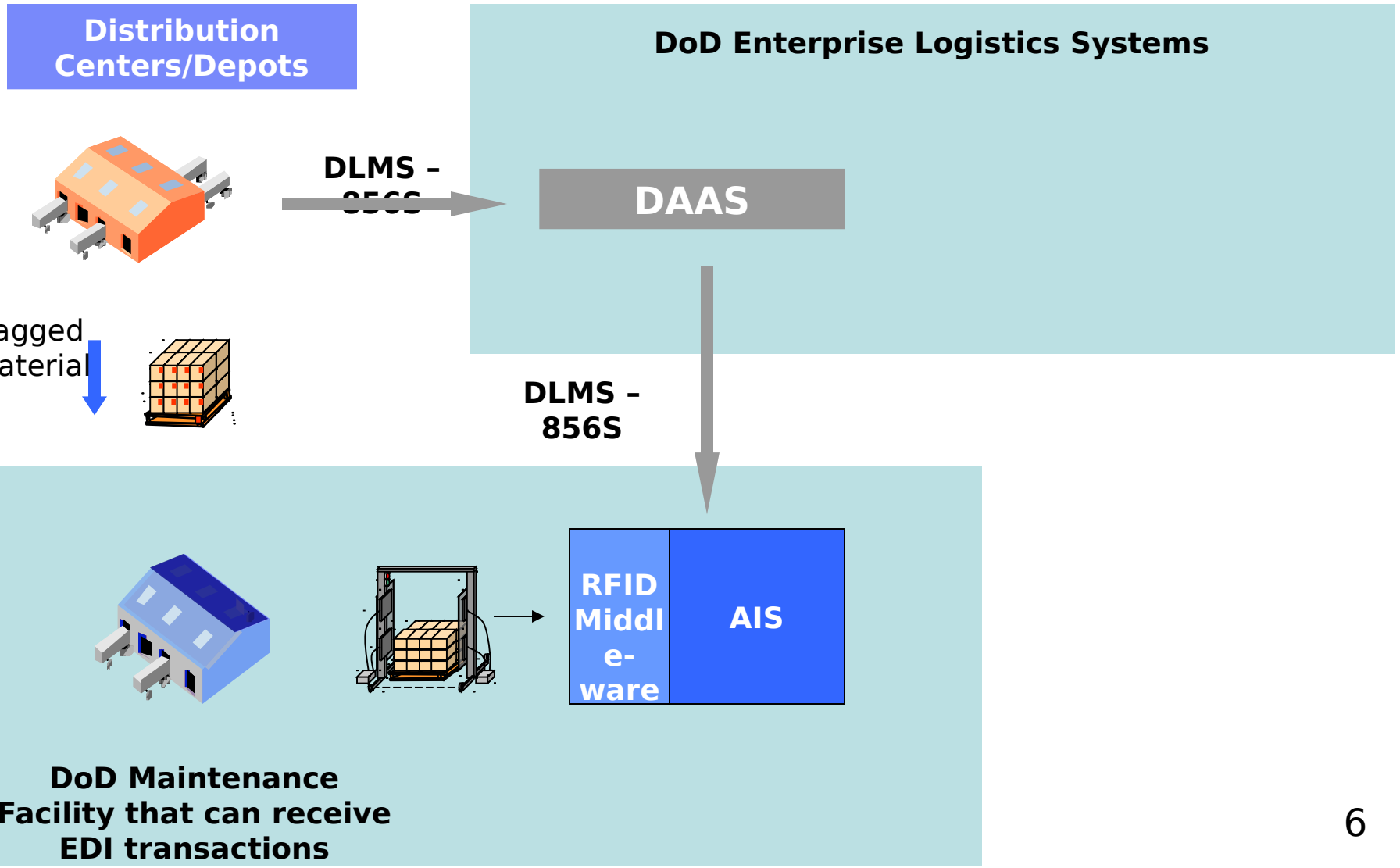
associated to …



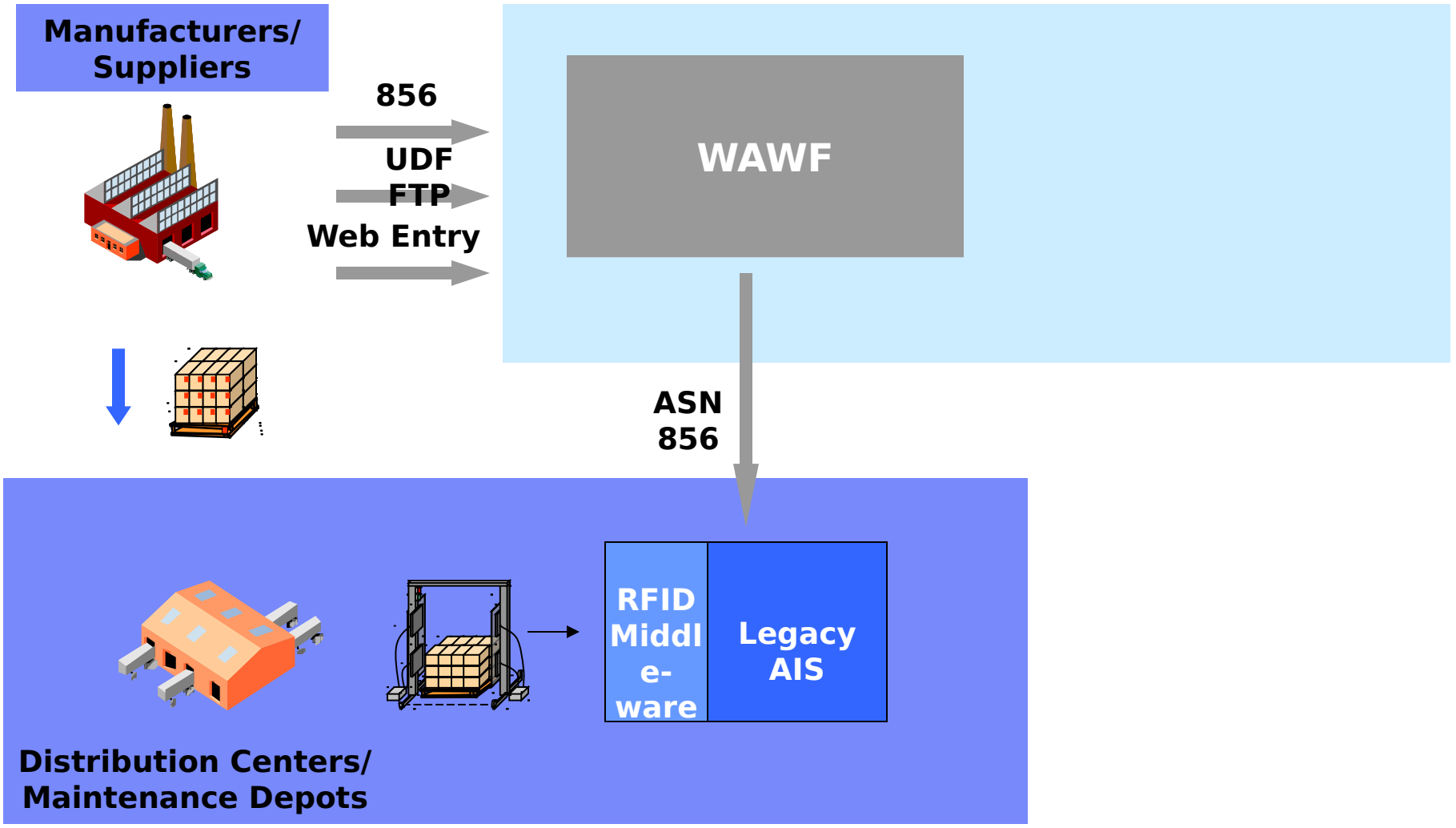
Passive RFID Tag on UID packaging each with 1 associated UID item



For internal DoD shipments, DAAS routes the transactions between shipping and receiving points.

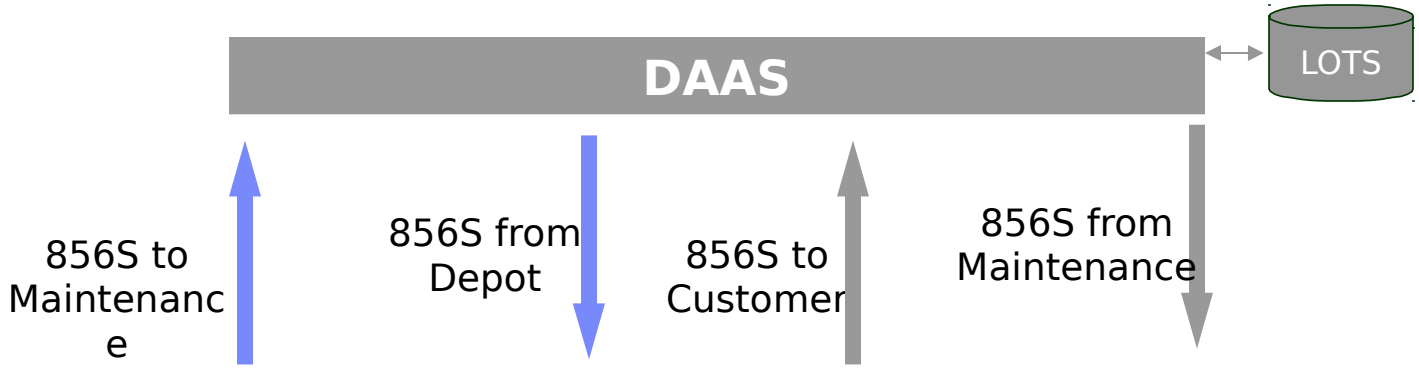


For external DoD shipments, DAAS routes the transactions from WAWF to receiving points.



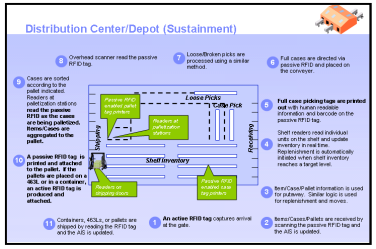
RFID data will flow into and out of the Maintenance facility through DAASC, tagged material flows from node to node and internal business processes are enhanced using RFID tags.

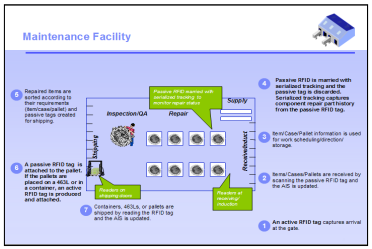
Data Flow

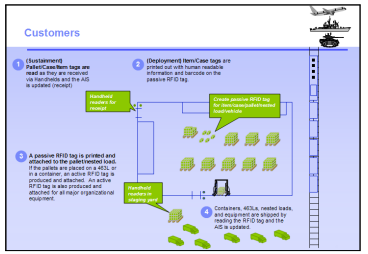


Material Flow

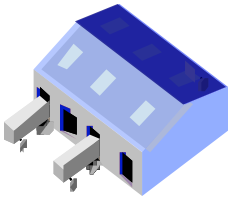
Internal Processes







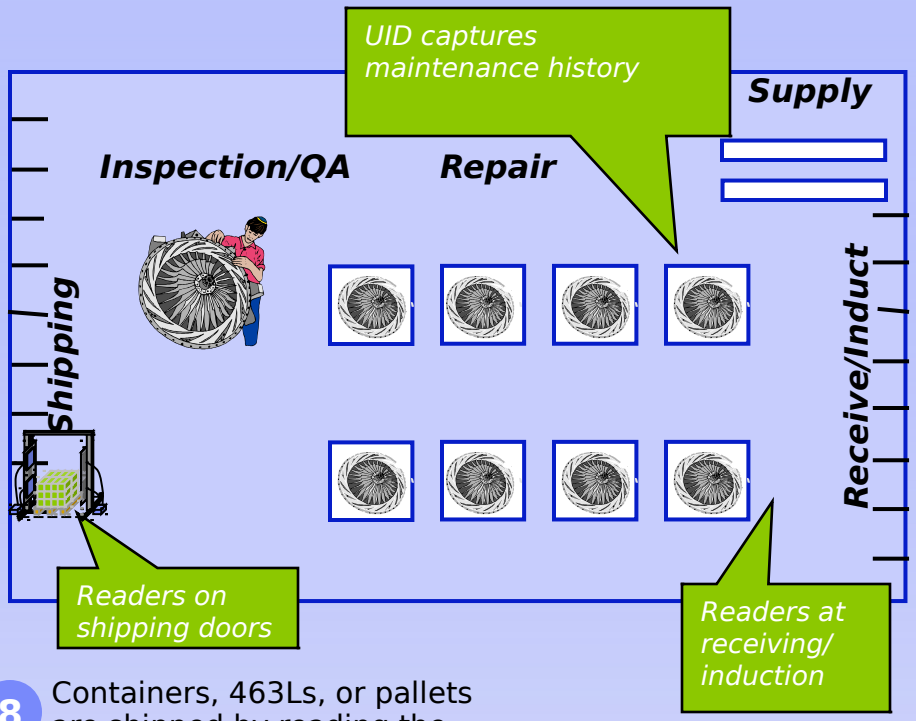
Proposed RF-enabled Maintenance Facility



5 Passive RFID is married with RTLS systems to monitor component repair status.

4 Passive tags are used for hands-free data capture of associated UID information.

6 Repaired items are readied for shipment and passive tags are created.



3 Item/Case/Pallet information is used for work scheduling/direction/ storage.

7 A passive RFID tag is attached to the pallet. If the pallets are placed on a 463L or in a container, an active RFID tag is produced and attached.

2 Items/Cases/Pallets are received by scanning the passive RFID tag and the AIS is updated.

8 Containers, 463Ls, or pallets are shipped by reading the RFID tag and the AIS is updated.

1 An active RFID tag captures arrival at the gate.

For Your Information

- For further information that can assist you with compliance, visit: http://www.dodrfid.org
  - DoD RFID Policy
  - DoD RFID Supplier Implementation Plan
  - DoD Suppliers' Passive RFID Information Guide
  - MIL-STD 129P(3) (Updated with RFID changes)
  - Draft Wide Area Workflow (WAWF) Implementation Convention (IC) Guides
  - Frequently Asked Questions (FAQ)
  - Schedule of RFID Events where DoD RFID personnel will be speaking
- You can ask the team any RFID-related question through the following email address: info@dodrfid.org

Don’t get stuck in the box

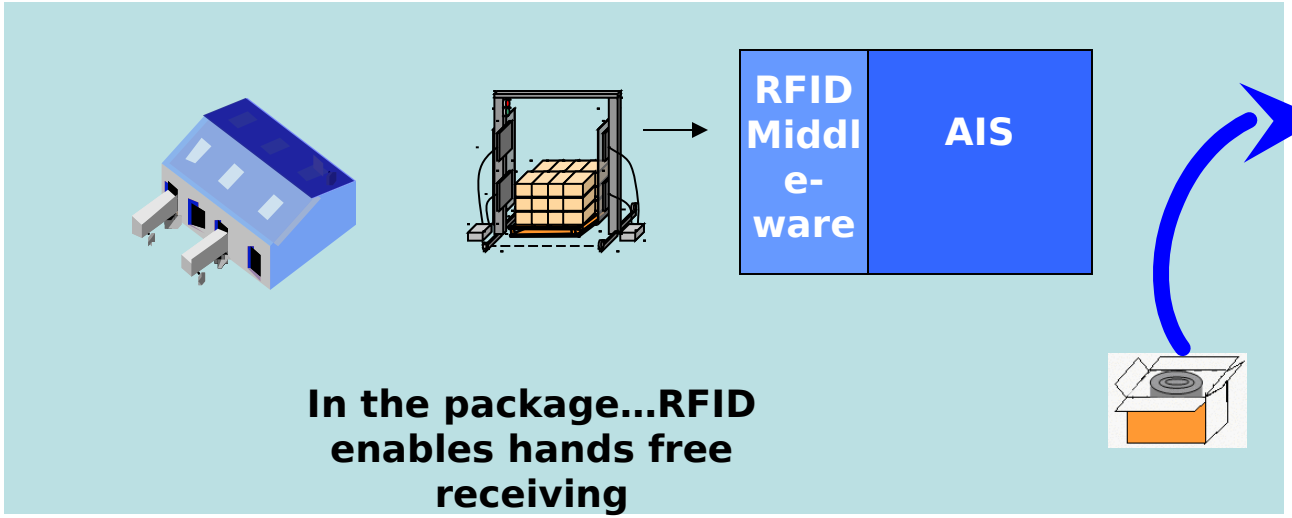
“I think the industry has sold itself on a program that offers so little return that it simply won’t be worth the trouble and expense.”

A Midwestern Grocery Chain Executive discussing the potential of the barcode in 1975*

“Scanning Hits a Snag,” Progressive Grocer, December 1975, p. 47

BACKUP

RFID and UID are complementary

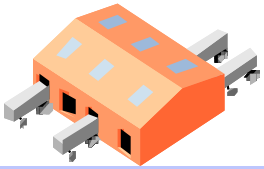


UID vs RFID

	UID	RFID
Marking	Item	Packaging
Technology	2D Data Matrix	EPC RFID tag
Purpose	Life cycle data visibility	Supply chain receipt/track
Threshold	>$5000, some exceptions	NONE
Implementation	January 1, 2004	January 1, 2005

Separate but integrated initiatives
Different technologies
Different business rules

Distribution Center/Depot



1 An **active RFID tag** captures arrival at the gate.

2 Items/Cases/Pallets are received by scanning the passive RFID tag and the AIS is updated.

3 Item/Case/Pallet information is used for putaway. Similar logic is used for replenishment and moves.

4 Shelf readers read individual units on the shelf and update inventory in real time. Replenishment is automatically initiated when shelf inventory reaches a target level.

5 **Full case picking tags are printed out** with human readable information and barcode on the passive RFID tag.

6 Full cases are directed via passive RFID and placed on the conveyer.

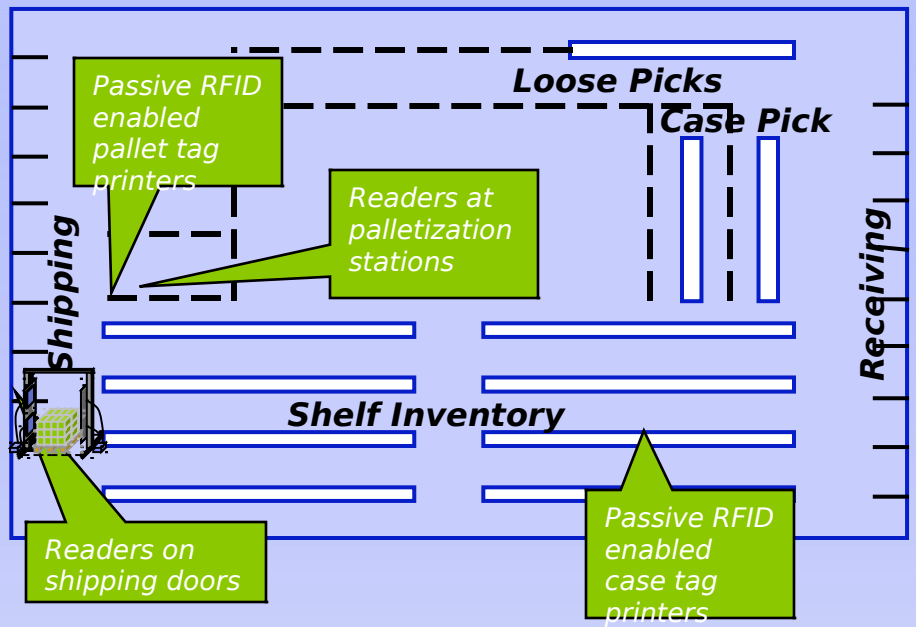
7 Loose/Broken picks are processed using a similar method.

8 Overhead scanner read the passive RFID tag.

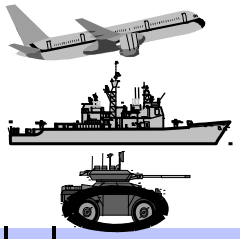
9 Cases are sorted according to the pallet indicated. Readers at palletization stations **read the passive RFID as the cases are being palletized. Items/Cases are aggregated to the pallet.**

10 **A passive RFID tag is printed and attached to the pallet. If the pallets are placed on a 463L or in a container, an active RFID tag is produced and attached.**

11 Containers, 463Ls, or pallets are shipped by reading the RFID tag and the AIS is updated.

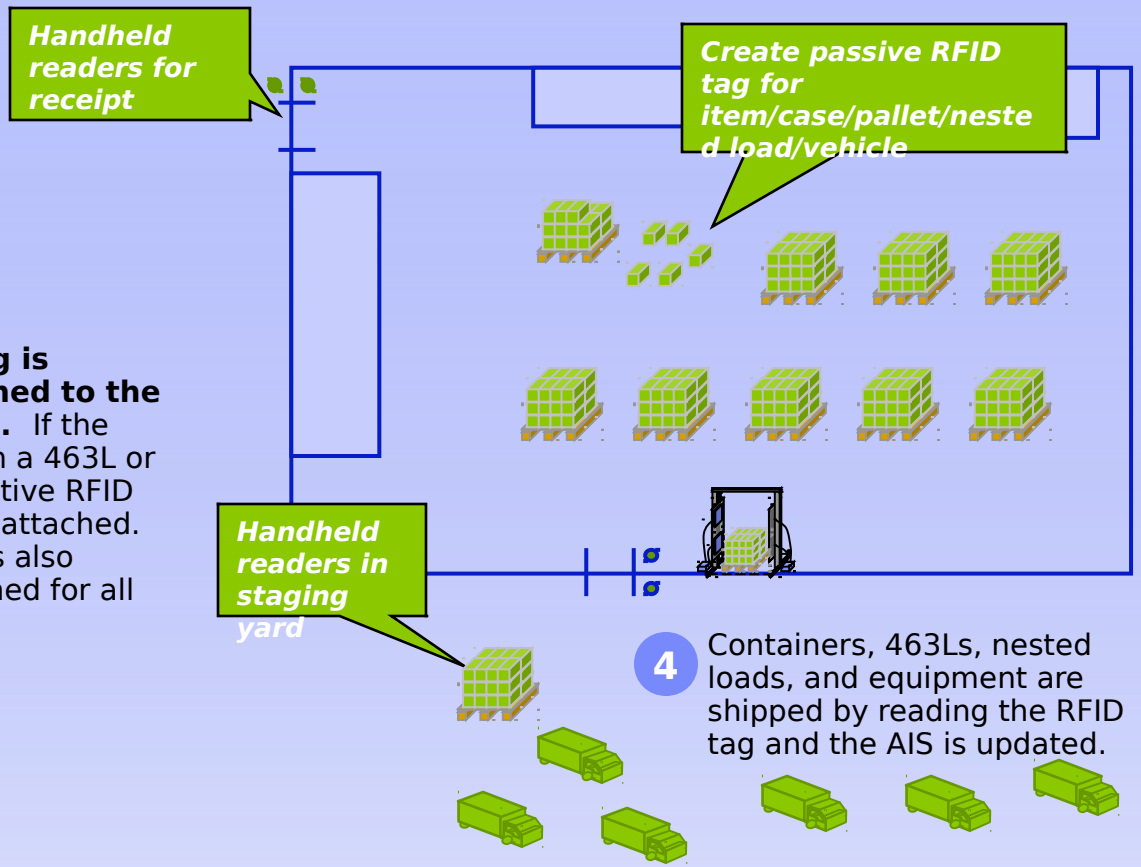


Customers



1 **(Sustainment) Pallet/Case/Item tags are read** as they are received via Handhelds and the AIS is updated (receipt)

2 **(Deployment) Item/Case tags** are printed out with human readable information and barcode on the passive RFID tag.



3 **A passive RFID tag is printed and attached to the pallet/nested load.** If the pallets are placed on a 463L or in a container, an active RFID tag is produced and attached. An active RFID tag is also produced and attached for all major organizational equipment.

4 Containers, 463Ls, nested loads, and equipment are shipped by reading the RFID tag and the AIS is updated.

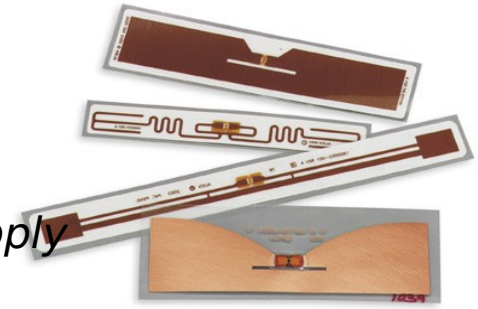
RFID Scope/Standards

Active RFID – freight containers, air pallets

- *SAVI 433 Mhz readers*
- *SAVI tags*
- *DoD tag data formats*
- *Suppliers rarely obligated to apply tags*

Passive RFID – case & pallet (all items), item packaging (UID items)

- *EPC std UHF readers*
- *EPC Class 0 & 1 std tags*
  - *Migration to EPC UHF Generation 2 std*
- *EPC and DoD tag data formats*
- *Suppliers will be contractually obligated to apply tags*



Contractual Requirement

- Two Major Requirements for Suppliers
  - Passive Tagging at the case and pallet level in accordance with the Implementation Plan
  - Advance Ship Notice (ASN)
- Specific Requirements:
  - Data encoded on tag must be unique
  - Passive tag is readable at time of shipment in accordance with MIL-STD 129P requirements
  - Passive tag is affixed at the appropriate location on the specified level of packaging in accordance with MIL-STD 129P requirements
  - Contractor shall use tag constructs in accordance with the details located at: http://www.dodrfid.org/tagdata.htm
  - Contractor shall electronically submit advance ship notices in accordance with procedures at http://www.dodrfid.org/asn.htm

Contractual Requirement

- Proposed DFAR clause published in Federal Register
- Public comments due NLT June 27, 2005
- Seeking comments on:
  - Clarity of definitions
  - Impact of providing electronic advance ship notices
  - Small business concerns
  - Possible impacts of RFID and mitigation on recycling process
- Link to clause on our website at www.dodrfid.org

Complementary use across the logistics supply chain